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THE CLOVER LEAF WEEVIL

AND ITS CONTROL

THE CLOVER LEAF WEEVIL is one of the important clover pests. It causes considerable worry to the farmer and is sometimes responsible for more or less severe injury to his clover crop before its depredations are checked by the fungus disease which usually controls it in the larval or grub stage.

This bulletin describes and illustrates the various stages of the insect and tells when and where these stages may be found and how the pest is usually controlled.

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THE CLOVER LEAF WEEVIL AND ITS CONTROL

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NATURE OF INJURY

SERIOUS INJURY to clover and alfalfa is occasionally caused by the clover leaf weevil.[1] During April and May a ragged appearance of clover and alfalfa plants is sometimes very noticeable, and if careful search is made around the base of the plants the dirty greenish wormlike or larval stage of this insect may be found. Its presence is indicated at first by small holes in the leaves and later by irregular patches eaten from the margins. Entire loss of a crop is rarely experienced, but considerable injury often may result, especially in backward seasons, before the larvæ become full grown or are killed by an almost universally prevalent fungous disease to which they are very susceptible.

DISTRIBUTION

The clover leaf weevil occurs in Asia, is well known in Europe, and after having been accidentally introduced into this country is now well established. The accompanying map (fig. 1) shows its probable distribution in the United States.

DESCRIPTION AND LIFE HISTORY

The adult stage of this insect (fig. 2) is a beetle of the weevil family and has a short but distinct snout. It varies somewhat in size, the average being about one-fourth inch in length and one-eighth inch in width. It is covered with small brown, yellow, and gray scales, which give it a grayish-brown and more or less mottled appearance.

The eggs are oval in shape, about one twenty-fifth of an inch long and about half as wide. They are yellowish when first laid but

[1] *Hypera punctata* Fab., order Coleoptera, family Curculionidæ.

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darken with age and finally turn black. The beetles deposit the eggs in various places about the host plant; in cavities gnawed in fresh stems (fig. 3), in hollows of old stems, or in masses on the leaves and stems of fresh plants. For the most part the eggs are laid during the fall of the year.

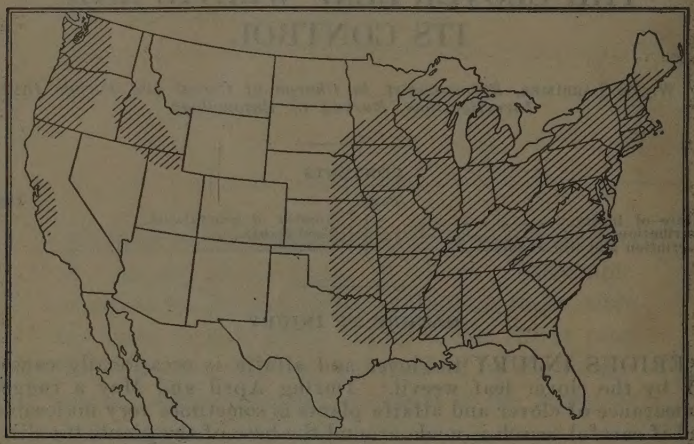

FIG. 1.—Probable distribution of the clover leaf weevil in the United States

Most of the eggs hatch in the fall, although some remain through the winter. The resulting larvæ are small and green, tapering toward either end. They begin feeding at once, eating the tender leaves, and gradually increase in size, feeding during the mild days of the fall, winter, and spring, and finally become full grown about the latter part of April or May. The full-grown larvæ (figs. 4 and 5) are from three-eighths to one-half inch long, usually green in color but sometimes yellowish, with a white or pinkish line down the center of the back. They eat irregular patches from the leaves, causing the ragged appearance of the host plants.

FIG. 2.—Adult clover leaf weevil, lateral view. Much enlarged. (Tower and Fenton)

When its growth is completed the larva spins a cocoon (fig. 6) in an oval cell just beneath the surface of the soil or in leaves or rubbish around the base of the plants. The cocoon is of a straw color, about three-eighths of an inch long by one-fourth inch wide. Within this cocoon the larva undergoes a short

resting stage in a form known as the pupa. This is a curious object somewhat resembling the larva, but more like the beetle which it is destined to become. After about 11 days the adult beetle emerges from the cocoon.

NUMBER OF GENERATIONS

In most cases where the clover leaf weevil has been of sufficient importance to invite careful study only one generation has been found from egg to adult, in a year. Exceptional seasonal conditions, however, may permit the development of a partial second generation, and when this occurs it probably results in the larvæ

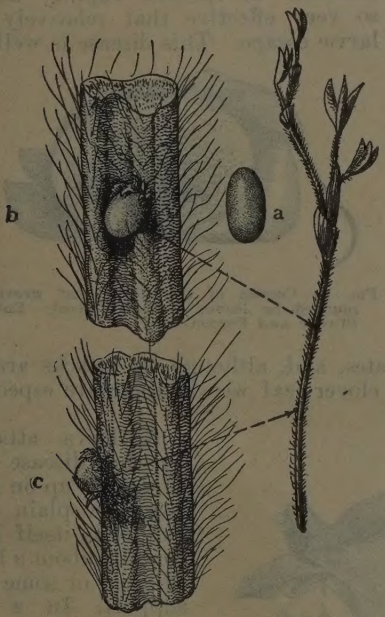

FIG. 3.—Egg of the clover leaf weevil: *a*, Lateral view; *b*, egg inserted into stem of clover plant; *c*, lateral view of *b*, Much enlarged. (Tower and Fenton)

FIG. 4.—Full-grown larva of the clover leaf weevil, dorsal view. Much enlarged. (Tower and Fenton)

that hatch earliest in the fall completing their development and producing beetles before cold weather arrives. These beetles then live over the winter and lay their eggs the following spring. The chief economic result of this additional generation probably is the excessive injury to young clover and alfalfa during the fall.

FOOD PLANTS

The principal food plants of the clover leaf weevil seem to be red clover, alfalfa, and white clover. All the other varieties of clover are eaten, including alsike and occasionally sweet clover, and some

varieties of beans. The beetles have been recorded as feeding on timothy, green wheat leaves, burdock, soy beans, various flowers, and even leaves of corn.

CONTROL

A fungus disease usually keeps this insect from becoming an extremely serious pest of clover and alfalfa. In case of heavy infestation this disease becomes epidemic and, within a very short time, kills the larvæ in countless numbers, usually just as an entire crop seems doomed. It spreads rapidly and is so very effective that relatively few larvæ escape. This disease is well distributed over the United States, and, although its attacks are not confined to the larvæ of the clover leaf weevil, these are especially susceptible to it.

FIG. 5.—Full-grown larva of the clover leaf weevil, lateral view. Much enlarged. (Tower and Fenton)

FIG. 6.—Cocoon of the clover leaf weevil surrounded by leaves of clover plant. Enlarged. (Tower and Fenton)

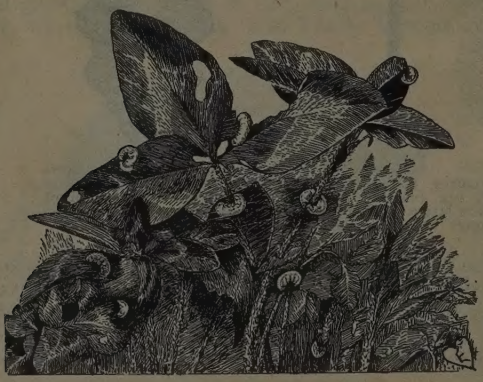

FIG. 7.—Usual position of larvæ of the clover leaf weevil attacked and killed by fungous disease

A larva attacked by this disease (fig. 7) crawls up on some plant in plain view and coils itself horizontally about a blade of grass or some such support. In a few hours it is dead. The body gradually turns gray, then black, and finally melts away to an inky mass.

In view of the effectiveness of this disease and the usual vigorous condition of the host plants in the spring of the year, it seldom is necessary or practical to apply direct control measures against this insect alone. However, by spraying the crop with a mixture of arsenate of lead at the strength of two pounds of the powder to 50

gallons of water, including 1 pound of laundry soap as a sticker, the mixture being applied at the rate of 100 gallons to the acre, a kill of 95 per cent of the larvæ has been obtained under the usual seasonal rainy weather conditions. It may happen that the disease becomes epidemic almost as soon as the poison is put on, and practically as good control would thus result as if no poison had been applied. In the Southern States instances have been known where young alfalfa plants have been practically stripped of leaves by the larvæ of this pest in the fall, at which time the disease is less effective. In such a case individual judgment must determine whether it is practical to spray for control.

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